

REMARKS

In paragraph 2 of the final Action, claims 1-4, 7-13, 15 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saderholm et al. in view of Hirai with reference to applicant's prior art shown in Fig. 4b. In paragraph 3 of the final Action, claims 5, 6 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saderholm et al. in view of Hirai and Gray et al.

In view of the rejections, claim 14 has been cancelled, and the subject matter of cancelled claim 14 has been incorporated into claim 1. Since the subject matter disclosed in claim 14 has been incorporated into claim 1, the amendment does not introduce new issue. Claim 1 is patentable over the cited references.

In amended claim 1, the airbag is constructed by a first panel and a second panel, which have peripheral portions having inner surfaces facing each other; elastic adhesive disposed between the inner surfaces of the first and second panels at the peripheral portions to connect the first and second panels; and a yarn sewed along the peripheral portions within a range of the width of the elastic adhesive to connect the first and second panels together with the elastic adhesive. The adhesive is adhered not only to the peripheral portions of the panels where they are sewn each other but also to a neighborhood thereof inside the airbag. Thus, when the first and second panels are pulled in inflating the airbag, the adhesive is pulled outwardly to absorb an expansion force and stress applied thereto.

In the invention, the peripheral portions of the first and second panels are connected by the elastic adhesive at the inner surfaces thereof, and the yarn sewed within the range of the width of the elastic adhesive. Therefore, when the airbag is inflated, the elastic adhesive is elastically pulled outwardly to properly absorb the expansion force of the airbag, and the first and second panels are securely connected together without gas leakage.

If the peripheral portions are only sewed by the yarn, the expansion force of the airbag is not absorbed, and air may leak through the sewed portion. Also, when the peripheral portions are only joined by the elastic adhesive, if a large force is applied to

the peripheral portion, the airbag may be torn easily.

In the invention, since the peripheral portion is connected by the adhesive and the yarn, the leakage of the gas and breakage of the airbag can be prevented. Also, the impact of the airbag when inflated or being collided with a passenger can be absorbed.

In Saderholm et al., an airbag is formed of three panels 10, 11, 12 firmly connected together along the peripheries. The inner panel 11 has an opening 16 and vents 26, and is connected to the upper panel 10 at a seam 23 and to the lower panel 12 at a seam 21. When the airbag is inflated, at first, the upper and inner panels 10, 11 are expanded outwardly, and after the seam 23 is broken, the upper panel 10 is expanded further outwardly.

In the invention, the elastic adhesive is disposed between the inner surfaces of the first and second panels at the peripheral portions to connect the first and second panels thereat together with the yarn. In the invention, the adhesive is adhered not only to the peripheral portions of the panels where they are sewn each other but also to a neighborhood thereof inside the airbag. In Saderholm et al., although the outer peripheries of the panels 10-12 are sewed together, no adhesive is provided between inner surfaces of the panels.

In the invention, when the first and second panels are pulled in inflating the airbag, the adhesive is also pulled outwardly to absorb the expansion force of the airbag and stress applied thereof. In Saderholm et al., when the airbag is inflated, the inflation force is directly applied to the seam 21 without any means to absorb the impact.

Therefore, Saderholm et al. does not disclose or even suggest the features of the invention.

In Hirai, a resin airbag is formed of front and rear panels 2, 3 with different sizes, and adhesive resin 5 for connecting the front and rear panels 2, 3. The adhesive resin 5 is deposited on an end face 2s, an inner surface 2i, an end face 3s and an outer surface 3a to connect the two panels 2, 3 (column 2, lines 8-13).

In the invention, the elastic adhesive is disposed between the inner surfaces of the first and second panels at the peripheral

portions to connect the first and second panels. In Hirai, although the adhesive resin 5 is used to connect the two panels, the adhesive resin 5 is applied on the outer surfaces of the two panels 2, 3, not deposited between the inner surfaces of the two panels, as defined in claim 1 of the invention.

In the invention, since the adhesive is applied between the inner surfaces of the first and second panels, when the first and second panels are pulled in inflating the airbag, the adhesive is properly pulled outwardly to absorb an expansion force of the airbag without easy break or tear. In Hirai, since the adhesive is not deposited between the panels, the adhesive does not operate to absorb the expansion force when the airbag is inflated, as in the invention.

In the invention, further, the yarn is sewed along the peripheral portions within the range of the width of the elastic adhesive to connect the first and second panels together with the elastic adhesive. In Hirai, the panels are adhered by the adhesive applied only outside the panels, not sewed together at the peripheries of the panels.

Hirai does not disclose or even suggest the features of the invention.

In Gray et al., a flexible polymerized resin 16 is partly applied to a front panel 8. Although a silicone coating is applied to a panel of the airbag, Gray et al. does not disclose or suggest the connection of the panels by the adhesive and yarn, as defined in the invention. Therefore, Gray et al. does not disclose or suggest the features of the invention.

In the prior art as shown in Figs. 4a, 4b of the application, the panels 1', 2' are joined together by threads or seams 3'. In order to prevent the gas leakage through the seams, silicone tapes 4 are applied over the seams. When the airbag is inflated, opening or separating force of the airbag is only applied to the seams 3'. The adhesive tapes 4 does not operate to connect the peripheries of the panels 1', 2'. Thus, the features of the invention are not disclosed or suggested in the prior art of Figs. 4a, 4b.

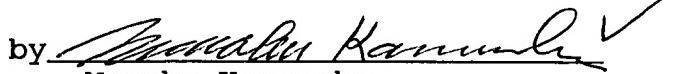
As explained above, the cited references do not disclose or suggest the features of the invention. In case Saderholm et al.,

Hirai and the prior art of Figs. 4a, 4b are combined, the adhesive as disclosed in Hirai may be applied to the outer peripheries of the panels as disclosed in Saderholm et al., on which the silicone tapes 4 are applied to cover the threads 17. However, since the cited references do not disclose or suggest that the adhesive is formed between the inner surfaces of the two panels, the combination of the cited references does not constitute the present invention. If Gray et al. is further considered, the outer coating is made outside the airbag. Therefore, even if the cited references are combined, the present invention is not made. The invention is not obvious from the cited references.

In the invention, the combination of the adhesive and the yarn can securely connect the panels with elasticity, which is not disclosed or suggested even if the cited references are combined together.

Reconsideration and allowance are earnestly solicited.

Respectfully submitted,
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1.(twice amended) An airbag comprising:

a first panel and a second panel, which have peripheral portions having inner surfaces facing [and connected to] each other,

elastic adhesive disposed between the inner surfaces of the first and second panels at the peripheral portions to connect the first and second panels, and

a yarn sewed along the peripheral portions within a range of the width of the elastic adhesive to connect the first and second panels together with the elastic adhesive, said adhesive being adhered not only to the peripheral portions of the panels where they are sewn each other but also to a neighborhood thereof inside the airbag so that when the first and second panels are pulled in inflating the airbag, the adhesive is pulled outwardly to absorb an expansion force and stress applied thereto.